

5846-5920

July 2, 1986

FIELD DATA FROM ROUND 2
OFF-SITE SAMPLING
MONTROSE SITE
TORRANCE, CALIFORNIA



HARGIS + ASSOCIATES, INC.

Consultants in Hydrogeology

5846-5920



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Consultants in Hydrogeology

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July 2, 1986

Ms. Therese Gioia
Environmental Protection Specialist
EPA (T-4-2)
Toxics and Waste Management Division
215 Fremont Street
San Francisco, CA 94105

RE: Field Note Submittal, Round 2 Off-Site Sampling,
Montrose Site, near Torrance, California

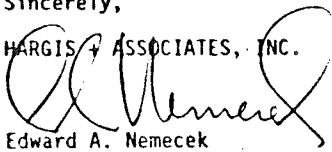
Dear Ms. Gioia:

Per the terms of the Consent Order Part II, B, 2, attached please find the required information. The Order calls for submission of boring logs and other field information. As you know, Round 2 did not consist of any soil borings; therefore, no boring logs are included with this submittal. All other information is submitted as appropriate to the type of sampling that was done during Round 2.

If you have any questions concerning this submittal, please do not hesitate to contact me.

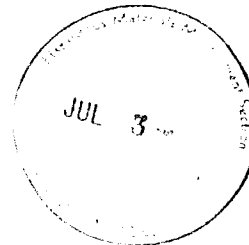
Sincerely,

HARGIS + ASSOCIATES, INC.


Edward A. Nemecek
Senior Associate

Enclosure

cc: R. Ghirelli, RWQCB
A. Bellomo, DOHS
D. Greeno, Montrose
K. Lytz, Latham & Watkins





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FIELD DATA FROM ROUND 2
OFF-SITE SAMPLING
MONTROSE SITE
TORRANCE, CALIFORNIA

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ILLUSTRATIONS

Figure

- 1 SURFACE WATER, SEDIMENT AND NEIGHBORHOOD SOIL SAMPLING LOCATIONS



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FIELD DATA FROM ROUND 2
OFF-SITE SAMPLING
MONTROSE SITE
TORRANCE, CALIFORNIA

INTRODUCTION

The following information, required by the EPA Consent Order, consists of field data from Sampling Round 2 of the Phase 1, Part 2 Remedial Investigation Off-Site Activities for the Montrose Site. Data are grouped according to sample type and area. Within each sample group, information is presented in numerical order by sample number.

Split samples are listed on Page 41 along with the numbers of the original samples they were taken from. Split sample numbers are also noted in the soil, sediment and surface water sample information. Trip blank, rinsate sample, meter calibration and weather information all follow the field data.

Sample locations are presented on Figure 1.

5
6
7
8
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NEIGHBORHOOD SOIL SAMPLES

5850



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NEIGHBORHOOD SOIL SAMPLES

SAMPLE NUMBER: NS1
DATE: May 20, 1986
TIME: 08:50
SAMPLE LOCATION: 1205 Knox Street; just east of driveway in bare soil which appears old and undisturbed.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Gray brown, dry, compact; sand is predominantly fine to medium grained with a trace of coarse; trace of well rounded gravel in surface veneer (0.25 to 1.5 inches in diameter).

SAMPLE NUMBER: NS2; SPLIT SAMPLE NUMBER NS18
DATE: May 20, 1986
TIME: 13:50
SAMPLE LOCATION: On west side of Vermont Avenue just north of LADWP transmission line.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Brown, dry, loose; sand is very fine to medium grained, well graded; trace of small gravel, much plant material.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS3
DATE: May 20, 1986
TIME: 13:30
SAMPLE LOCATION: Just west of the intersection of New Hampshire Avenue and 204th Street, in parkway one foot from curb on northside of 204th Street, in bare soil.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SANDY SILT: Light gray brown, dry, hard; sand is very fine to fine grained; trace of small gravel.

SAMPLE NUMBER: NS4
DATE: May 20, 1986
TIME: 14:45
SAMPLE LOCATION: In bare soil along parkway in front of 20617 Berendo Street; west side of Berendo Street between Milton Street and Torrance Boulevard.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Brown, dry, compact; sand is fine to coarse grained, well graded.

SAMPLE NUMBER: NS5
DATE: May 20, 1986
TIME: 15:20
SAMPLE LOCATION: In bare soil along parkway in front of 20815 Raymond Avenue.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: TOP SOIL/SANDY SILT: Dark brown, dry, loose to compact, about 50% to 70% plant material and 30% to 50% sandy silt.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS6
DATE: May 20, 1986
TIME: 16:35
SAMPLE LOCATION: In bare soil of parkway in front of 20832 Halldale Avenue.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Brown and gray brown, dry, compact, friable; sand is fine to very fine grained with a trace of medium to coarse; trace of plant material.

SAMPLE NUMBER: NS7
DATE: May 20, 1986
TIME: 17:00
SAMPLE LOCATION: In bare soil between guardrail and sidewalk on south side of Torrance Boulevard, 37 feet west of Dalton Avenue.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Gray brown, dry, loose; sand is fine to very fine grained with a trace of medium to coarse; trace of small gravel, subangular to subrounded; many small roots.



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**NEIGHBORHOOD SOIL SAMPLES
(continued)**

SAMPLE NUMBER: NS8; SPLIT SAMPLE NUMBER NS19
DATE: May 21, 1986
TIME: 08:35
SAMPLE LOCATION: In vacant lot on the northeast corner of 206th Street and Harvard Boulevard.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SANDY SILT: Gray brown, dry, dense; sand is fine to very fine grained with a trace of medium to coarse; many small roots, many shrinkage cracks.

SAMPLE NUMBER: NS9
DATE: May 21, 1986
TIME: 10:30
SAMPLE LOCATION: In bare soil in parkway in between east and west bound lanes of Torrance Boulevard, north of the railroad tracks, located 160 feet west of 209th Street opposite 1583 and 1601 Torrance Boulevard.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: GRAVELLY SILTY SAND: Light brown, dry to slightly damp, dense; sand is very fine to coarse, well graded, subangular to angular; gravel is up to 1.5 inches in diameter, subangular to subrounded.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS10
DATE: May 21, 1986
TIME: 11:05
SAMPLE LOCATION: In bare soil in parkway on northeast corner of Denker Avenue and 211th Street.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SANDY SILT: Brown with light brown mottle, moist, stiff, slightly plastic; sand is fine to very fine grained; some fine roots.

SAMPLE NUMBER: NS11
DATE: May 20, 1986
TIME: 16:10
SAMPLE LOCATION: West of Normandie Avenue (the main thoroughfare) and east of Normandie Boulevard (frontage road). In bare soil between Normandie Boulevard and railroad tracks.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SANDY SILT TO SILTY SAND: Gray brown, dry, dense, friable; sand is fine to very fine grained with some medium to coarse; some small gravel as a surficial veneer.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS12
DATE: May 20, 1986
TIME: 15:45
SAMPLE LOCATION: In bare soil at the west end of 210th Street, west of Royal Boulevard.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SILTY GRAVELLY SAND: Gray brown, dry, dense; sand is very fine to coarse grained, well graded, subangular to subrounded; some gravel up to 1.5 inches in diameter, subangular to angular.

SAMPLE NUMBER: NS13
DATE: May 20, 1986
TIME: 09:30
SAMPLE LOCATION: In bare soil at east end of 210th Street, adjacent to 1002 210th, east of Royal Boulevard.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SANDY SILT: Gray brown, dry, compact; sand is fine grained with a trace of medium to coarse; some small roots and plant material, soil breaks into clods.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS14
DATE: May 20, 1986
TIME: 14:55
SAMPLE LOCATION: In bare soil of parkway on the west side of Vermont Avenue south of Torrance Boulevard.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Brown, dry, hard; sand is fine to coarse grained, well graded, subangular to rounded.

SAMPLE NUMBER: NS15
DATE: May 20, 1986
TIME: 14:25
SAMPLE LOCATION: In bare soil on parkway along the south side of Del Amo Boulevard, west of Hamilton.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Light orange brown, dry to slightly damp, compact; sand is fine to coarse grained, well graded, rounded to subangular, predominantly quartz. Sand is overlain by a thin, less than 0.5 inch, veneer of gravelly silty sand, gray, dry with broken glass.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: NS16
DATE: May 20, 1986
TIME: 12:25
SAMPLE LOCATION: In bare soil on the east side of Hamilton Avenue in front of the Los Angeles City Housing Authority and immediately north of a nursery.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Light brown, dry, dense, friable; sand is fine to medium grained with a trace of coarse sand and small gravel.

SAMPLE NUMBER: NS17
DATE: May 20, 1986
TIME: 11:55
SAMPLE LOCATION: On I-405 right-of-way directly north of Pacific Gateway Avenue, eleven feet north of warehouse at 1115 190th Street.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Brown, dry, loose, friable; sand is fine to coarse grained, well graded, subangular to angular.



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NEIGHBORHOOD SOIL SAMPLES
(continued)

SAMPLE NUMBER: 5-20-SB Background Neighborhood Soil Sample.

DATE: May 20, 1986

TIME: 10:35

SAMPLE LOCATION: In bare soil approximately three miles southwest of the Montrose site near the corner of Madrona Avenue and 224th Street.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SILTY SAND: Brown, dry, compact, friable; sand is fine to very fine grained, subrounded to subangular, predominantly quartz; trace of coarse sand, small gravel and plant material.



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KENWOOD DRAIN SEDIMENT SAMPLES



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KENWOOD DRAIN SEDIMENT SAMPLES

SAMPLE NUMBER: KD1
DATE: May 29, 1986
TIME: 09:45
SAMPLE LOCATION: Catchment basin at curb on the west side of Normandie Avenue, opposite the south side of West 204th Street.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Dark brown, moist, loose. Sand is fine to coarse, well graded, predominantly quartz; some trash and plant material.
EXTENT OF SEDIMENT: 4 inch maximum depth on north and south side of basin tapering to zero in center of basin. Basin dimensions are 5 feet long by 2.5 feet wide by 7.1 feet high. Pipelines leading to and from catchment basin appear free of sediment.

SAMPLE NUMBER: KD3
DATE: May 29, 1986
TIME: 12:45
SAMPLE LOCATION: Manhole in front yard of 20531 Kenwood Avenue.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Black, wet, loose, predominantly medium grained, some small gravel, very oily, petroleum odor, broken glass and refuse.
EXTENT OF SEDIMENT: Maximum sediment depth measured by pushing trowel into sediment until refusal at 7 inches of penetration. Sediment extends up and down stream as far as visible, about 100 feet. Drain is a 42 inch diameter reinforced concrete pipe (RCP).



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KENWOOD DRAIN SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: KD4; SPLIT SAMPLE NUMBER KD6.

DATE: May 29, 1986

TIME: 14:30

SAMPLE LOCATION: Manhole at alley just north of Torrance Boulevard
on west side of Kenwood Avenue.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SILTY SAND: Dark gray to drab greenish gray with
some black streaks, wet, loose, medium to fine
grained sand, broken glass and refuse.

EXTENT OF SEDIMENT: Bottom is covered with standing water to about 50
feet downstream. From about 50 feet to 100 feet
sediment and refuse can be seen in mounds up to
about 1.5 feet and averages about six inches above
water surface. Upstream, standing water occurs
only on west side of drain to about 25 feet
upstream. On east side sediment stands 1 inch
above water level. About 25 feet upstream sediment
stands about 1 foot above water in a mound. Water
depth at manhole is 7 inches. Drain is a 42 inch
diameter RCP.



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**KENWOOD DRAIN SEDIMENT SAMPLES
(continued)**

SAMPLE NUMBER: KD5

DATE: May 29, 1986

TIME: 16:15

SAMPLE LOCATION: Manhole in Royal Boulevard between the two Armco vacant lots.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SAND: Black, wet, loose, fine to medium grained. Sand grains give off an opalescent reflection. Some metallic fragments. Some bright orange flakes less than 0.05 inch in size.

EXTENT OF SEDIMENT: One to two inches of sediment on bottom of drain in the vicinity of the manhole. Sediment is covered by about 0.2 feet of standing water. Drain is rectangular in cross section, and is 8 feet wide.



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KENWOOD DRAIN SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: KD7

DATE: May 29, 1986

TIME: 18:00

SAMPLE LOCATION: 25 feet upstream from confluence with Torrance
Lateral on north side of drain.

SAMPLING METHOD: Trowel

SAMPLE DESCRIPTION: SAND: Gray to dark gray, wet, loose, medium to
fine grained with trace of coarse.

EXTENT OF SEDIMENT: Sediment occurs as a sand bar along north wall of
drain with approximate average dimensions of 70
feet long, 1.5 feet wide, and 4 inches thick.



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TORRANCE LATERAL SEDIMENT SAMPLES



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TORRANCE LATERAL SEDIMENT SAMPLES

SAMPLE NUMBER: SED6
DATE: May 29, 1986
TIME: 18:45
SAMPLE LOCATION: Torrance Lateral. Upstream side of the bridge at Torrance Boulevard and Vermont Avenue in the center of the channel.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Dark gray, wet, loose, well graded, fine to medium grained, slight veneer of algae, strong sewage odor.
EXTENT OF SEDIMENT: Averages about two inches thick by approximately 10 square feet of area.

SAMPLE NUMBER: SED7
DATE: May 29, 1986
TIME: 19:15
SAMPLE LOCATION: Torrance Lateral. 0.15 mile west of Harbor Freeway bridge.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Light brown, dry, loose, well graded, fine to coarse grained, subrounded to subangular.
EXTENT OF SEDIMENT: Approximately 38 feet long by an approximate maximum width of four feet by an approximate maximum thickness of three inches.



TORRANCE LATERAL SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED8
DATE: May 29, 1986
TIME: 19:45
SAMPLE LOCATION: Torrance Lateral. At the base of the channel access ramp, just east of Main Street on the north side of the channel.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SILTY SAND: Light brown, dry, loose; sand is fine to very fine grained with a trace of medium to coarse.
EXTENT OF SEDIMENT: Approximately 110 square feet in area with an approximate average depth of 0.5 inches and a maximum depth of about two inches.

SAMPLE NUMBER: SED9
DATE: May 29, 1986
TIME: 20:30
SAMPLE LOCATION: Torrance Lateral. 225 feet upstream from Grace Avenue.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Black with about 0.1 inch veneer of brown at surface, wet, loose, fine to coarse grained, well graded, trace of gravel.
EXTENT OF SEDIMENT: Approximately 65 square feet in area with an average thickness of one inch and a maximum thickness of about three inches.



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TORRANCE LATERAL SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED10; SPLIT SAMPLE NUMBER SED30
DATE: May 30, 1986
TIME: 09:15
SAMPLE LOCATION: Torrance Lateral. Downstream end of channel where concrete lining ends. About 100 yards upstream of the I-405 overpass.
SAMPLING METHOD: Trowel
SAMPLE DESCRIPTION: SAND: Upper 0.1 inch is light brown, black with iridescent sheen below, wet, loose, fine to medium grained, strong H₂S odor.



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DOMINGUEZ CHANNEL SEDIMENT SAMPLES

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DOMINGUEZ CHANNEL SEDIMENT SAMPLES

SAMPLE NUMBER: SED11

DATE: May 28, 1986

TIME: 14:30, 14:45, 15:00

SAMPLE LOCATION: Dominguez Channel. Upstream side of Main Street bridge. Sediment samples collected at 31, 62, and 85 feet from east bank. Approximate width of wetted channel is 120 feet.

SAMPLING METHOD: Benthic sampler lowered from bridge.

SAMPLE DESCRIPTION: SED11-31: SANDY SILT: Brownish gray, wet, soft to firm, moss like material, small swimming organisms 0.05 inch.

SED11-62: SAND: Gray, wet, loose, very fine to medium grained, moss like material and organisms.

SED11-85: SILTY CLAY: Gray, wet, soft, plastic, moss like material and organisms.

DOMINGUEZ CHANNEL SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED12

DATE: May 30, 1986

TIME: 13:40, 14:00, 14:15

SAMPLE LOCATION: Dominguez Channel. Upstream side of pipeline bridge approximately 2,000 feet upstream from the Torrance Lateral, adjacent to truck weigh station on I-405. Sediment samples collected at 35, 85, and 135 feet from the east bank.

SAMPLING METHOD: Hand auger from aluminum power skiff.

SAMPLE DESCRIPTION: SED12-35: SILTY SAND: Dark gray to black, wet, loose, medium to very fine grained, much plant material, some mussel shells.

SED12-85: SILTY SAND: Dark gray to black, wet, loose, fine to very fine grained.

SED12-135: Same as SED12-85.

SAMPLE NUMBER: SED13

DATE: May 30, 1986

TIME: 12:15, 12:30, 13:05

SAMPLE LOCATION: Dominguez Channel. Immediately upstream of the Avalon Avenue bridge and immediately downstream of the confluence of the Torrance Lateral with the Dominguez Channel. Sediment samples collected at 35, 85, and 135 feet from the east bank.

SAMPLING METHOD: Hand auger from aluminum power skiff.

SAMPLE DESCRIPTION: SED13-85: CLAYEY SILT: Black, wet, soft, slightly plastic.

SED13-85: CLAY: Blue gray, wet, soft, plastic.

SED13-135: SILT: Black, wet, soft, nonplastic.



DOMINGUEZ CHANNEL SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED14; SPLIT SAMPLE NUMBER SED37

DATE: June 11, 1986

TIME: 14:45, 15:30

SAMPLE LOCATION: Dominguez Channel. Immediately upstream of railroad bridge near the intersection of Wilmington and Wardlow. Sediment collected at 60 feet (mid-channel) and 25 feet from the north bank.

SAMPLING METHOD: Hand auger from aluminum power skiff.

SAMPLE DESCRIPTION: SED14-25 AND SED14-60: SANDY SILT: Black to very dark gray, wet, very soft, 20 percent very fine to fine grained sand, trace of bivalves and plant material.

SAMPLE NUMBER: SED15

DATE: June 11, 1986

TIME: 16:30, 17:15, 17:40

SAMPLE LOCATION: Dominguez Channel, downstream of Sepulveda Boulevard and immediately downstream of pipeline bridge. Sediment collected 30, 50, and 95 feet from the east bank.

SAMPLING METHOD: Hand auger from aluminum power skiff

SAMPLE DESCRIPTION: SED15-30 AND SED15-50: SANDY SILT: Black to very dark gray, wet, very soft; 15 percent very fine to coarse grained sand; some gravel, less than 0.5 inches in diameter, subangular to angular; trace of bivalves.

SED15-95: Same as above but with some small shells.



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CONSOLIDATED SLIP SEDIMENT SAMPLES

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CONSOLIDATED SLIP SEDIMENT SAMPLES

SAMPLE NUMBER: SED16
DATE: June 5, 1986
TIME: 17:40 - 18:10
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED17
DATE: June 5, 1986
TIME: 15:25 - 15:54
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED18; SPLIT SAMPLE NUMBER SED33
DATE: June 5, 1986
TIME: 12:00 - 12:45
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.



CONSOLIDATED SLIP SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED19; SPLIT SAMPLE NUMBER SED30
DATE: June 4, 1986
TIME: 18:00 - 19:30
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED20
DATE: June 6, 1986
TIME: 16:00 - 16:45
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED21; SPLIT SAMPLE NUMBER SED35
DATE: June 6, 1986
TIME: 12:50 - 13:35
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.



CONSOLIDATED SLIP SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED22
DATE: June 8, 1986
TIME: 11:15 - 12:10
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED23
DATE: June 7, 1986
TIME: 18:15 - 18:45
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.

SAMPLE NUMBER: SED24
DATE: June 6, 1986
TIME: 18:35 - 19:20
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Black, wet, very soft, nonplastic, gelatinous, H₂S odor, oily appearance, sediment is homogeneous along transect.



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CONSOLIDATED SLIP SEDIMENT SAMPLES
(continued)

SAMPLE NUMBER: SED25; SPLIT SAMPLE NUMBER SED36
DATE: June 7, 1986
TIME: 14:30 - 15:20
SAMPLING LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
SAMPLING METHOD: Benthic sampler lowered from 22 foot power boat.
SAMPLE DESCRIPTION: SILT: Dark drab greenish gray to black, wet, very soft, nonplastic, gelatinous, some very fine grained mica flakes, many fine roots, some plant debris.



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TORRANCE LATERAL SURFACE WATER SAMPLES

15 6 7 8



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TORRANCE LATERAL SURFACE WATER SAMPLES

SAMPLE NUMBER: SW4
DATE: June 13, 1986
TIME: 08:30
SAMPLE LOCATION: In Torrance Lateral. About 50 feet upstream from the Torrance Boulevard - Vermont Avenue bridge.
SAMPLING METHOD: One liter Teflon beaker
EXTENT OF WATER: Approximate maximum depth of 0.75 inches tapering to zero at the sides. Approximately 20 feet wide.
TEMPERATURE (C°): 19
pH: 8.98
ELECTRICAL CONDUCTIVITY*: 100

SAMPLE NUMBER: SW5; SPLIT SAMPLE NUMBER SW39
DATE: June 12, 1986
TIME: 20:30
SAMPLE LOCATION: In Torrance Lateral. About 50 feet upstream of Main Street bridge.
SAMPLING METHOD: One liter Teflon beaker
EXTENT OF WATER: Approximate maximum depth of two inches tapering to zero at the sides. Approximately 15 feet wide.
pH: 9.40
ELECTRICAL CONDUCTIVITY*: 750

*micro-mhos per cm



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DOMINGUEZ CHANNEL SURFACE WATER SAMPLES



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DOMINGUEZ CHANNEL SURFACE WATER SAMPLES

SAMPLE NUMBER: SW6

DATE: June 12, 1986

TIME: 16:35 - 17:05

SAMPLE LOCATION: Dominguez Channel. Upstream side of Main Street bridge at three points: 32 feet from the north bank (SW6-N); 72 feet (SW6-C); and 112 feet (SW6-S).

WIDTH OF WETTED CHANNEL: 125 feet

	<u>SW6-N</u>	<u>SW6-C</u>	<u>SW6-S</u>
DEPTH OF WATER (feet):	8.0	9.6	9.1
DEPTH OF SAMPLE COLLECTION (feet):	1.6 6.4	1.9 7.7	1.8 7.3
SAMPLING METHOD:	PVC point source bailer lowered from bridge.		
TEMPERATURE (C°):	25		
pH:	7.18		
ELECTRICAL CONDUCTIVITY*:	31,700		

*micro-mhos per cm



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DOMINGUEZ CHANNEL SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW7

DATE: June 12, 1986

TIME: 13:30 - 14:15

SAMPLE LOCATION: Dominguez Channel. Pipeline bridge upstream from
Torrance Lateral, adjacent to truck weigh station
on I-405. Upstream side of bridge at three points:
22 feet from the north bank (SW7-N); 67 feet
(SW7-C); and 112 feet (SW7-S).

WIDTH OF WETTED
CHANNEL: 135 feet

	<u>SW7-N</u>	<u>SW7-C</u>	<u>SW7-S</u>
DEPTH OF WATER (feet):	7.4	8.9	7.2
DEPTH OF SAMPLE COLLECTION (feet):	1.5 5.9	1.8 7.1	1.4 5.8
SAMPLING METHOD:	PVC point source bailer lowered from bridge.		
TEMPERATURE (C°):	25		
pH:	7.80		
ELECTRICAL CONDUCTIVITY*:	35,400		

*micro-mhos per cm



HARGIS + ASSOCIATES, INC.

DOMINGUEZ CHANNEL SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW8

DATE: June 12, 1986

TIME: 10:50 - 11:20

SAMPLE LOCATION: Dominguez Channel. Upstream side of the Avalon Avenue bridge. Three sampling points along bridge: 25 feet from the north bank (SW8-N); 72 feet (SW8-C); and 125 feet (SW8-S).

WIDTH OF WETTED CHANNEL: 165 feet

	<u>SW8-N</u>	<u>SW8-C</u>	<u>SW8-S</u>
DEPTH OF WATER (feet):	6.9	8.8	7.8
DEPTH OF SAMPLE COLLECTION (feet):	1.4 5.5	1.8 7.0	1.6 6.2
SAMPLING METHOD:	PVC point source bailer lowered from bridge.		
TEMPERATURE (C°):	27		
pH:	7.58		
ELECTRICAL CONDUCTIVITY*:	35,000		

*micro-mhos per cm



HARGIS + ASSOCIATES, INC.

**DOMINGUEZ CHANNEL SURFACE WATER SAMPLES
(continued)**

SAMPLE NUMBER: SW9

DATE: June 12, 1986

TIME: 19:15 - 19:55

SAMPLE LOCATION: Dominguez Channel. Upstream side of railroad bridge near the intersection of Wilmington and Wardlow. Three sampling points along the bridge: 30 feet from the east bank (SW9-E); 80 feet (SW9-C); and 95 feet (SW9-W).

WIDTH OF WETTED CHANNEL: 155 feet

	<u>SW9-E</u>	<u>SW9-C</u>	<u>SW9-W</u>
DEPTH OF WATER (feet):	11.6	11.6	11.0

DEPTH OF SAMPLE COLLECTION (feet):	2.3 9.3	2.3 9.3	2.2 8.8
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SAMPLING METHOD: PVC point source bailer lowered from bridge.

pH: 7.65

ELECTRICAL CONDUCTIVITY*: 37,300

*micro-mhos per cm



HARGIS + ASSOCIATES, INC.

DOMINGUEZ CHANNEL SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW10

DATE: June 13, 1986

TIME: 10:40 - 11:05

SAMPLE LOCATION: Upstream side of Sepulveda bridge at three points,
25 feet from east bank (SW10-E); 60 feet (SW10-C);
and 115 feet (SW10-W).

WIDTH OF WETTED
CHANNEL: 142 feet

	<u>SW10-E</u>	<u>SW10-C</u>	<u>SW10-W</u>
DEPTH OF WATER (feet):	8.6	12.0	7.6
DEPTH OF SAMPLE COLLECTION (feet):	1.7 6.9	2.4 9.6	1.5 6.1

SAMPLING METHOD: PVC point source bailer lowered from bridge.

TEMPERATURE (C°): 23

pH: 7.8

ELECTRICAL
CONDUCTIVITY*: 39,800

*micro-mhos per cm

30



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CONSOLIDATED SLIP SURFACE WATER SAMPLES



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CONSOLIDATED SLIP SURFACE WATER SAMPLES

SAMPLE NUMBER: SW16
DATE: June 5, 1986
TIME: 17:15
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 25
DEPTH OF SAMPLE COLLECTION (feet): 7.5 and 15
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 22
pH: 7.21
ELECTRICAL CONDUCTIVITY*: 41,800

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW17; SPLIT SAMPLE NUMBER SW31
DATE: June 5, 1986
TIME: 15:10
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 32
DEPTH OF SAMPLE COLLECTION (feet): 6.4 and 25.4
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 24.5
pH: 7.20
ELECTRICAL CONDUCTIVITY*: 39,600

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

**CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)**

SAMPLE NUMBER: SW18
DATE: June 5, 1986
TIME: 11:45
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 33
DEPTH OF SAMPLE COLLECTION (feet): 6.6 and 26.4
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 21
pH: 7.03
ELECTRICAL CONDUCTIVITY*: 39,800

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

**CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)**

SAMPLE NUMBER: SW19
DATE: June 5, 1986
TIME: 11:15
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 27.5
DEPTH OF SAMPLE COLLECTION (feet): 5.4 and 23.6
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 19
pH: 7.84
ELECTRICAL CONDUCTIVITY*: 33,800

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW20
DATE: June 6, 1986
TIME: 15:20
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 27
DEPTH OF SAMPLE COLLECTION (feet): 8.1 and 16
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 24
pH: 7.14
ELECTRICAL CONDUCTIVITY*: 46,000

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW21; SPLIT SAMPLE NUMBER SW35
DATE: June 6, 1986
TIME: 12:15
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 27
DEPTH OF SAMPLE COLLECTION (feet): 8 and 15
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
pH: 7.06
ELECTRICAL CONDUCTIVITY*: 42,000

* micro-mhos per cm



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**CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)**

SAMPLE NUMBER: SW22
DATE: June 8, 1986
TIME: 10:45
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 26
DEPTH OF SAMPLE COLLECTION (feet): 8 and 15.6
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
pH: 7.60
ELECTRICAL CONDUCTIVITY*: 41,000

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW23
DATE: June 7, 1986
TIME: 17:25
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 18
DEPTH OF SAMPLE COLLECTION (feet): 5.5 and 11
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 22
pH: 7.70
ELECTRICAL CONDUCTIVITY*: 41,000

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

**CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)**

SAMPLE NUMBER: SW24
DATE: June 6, 1986
TIME: 18:05
SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.
DEPTH OF WATER (feet): 24
DEPTH OF SAMPLE COLLECTION (feet): 7 and 14
SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat.
TEMPERATURE (C°): 20.5
pH: 7.09
ELECTRICAL CONDUCTIVITY*: 39,500

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

CONSOLIDATED SLIP SURFACE WATER SAMPLES
(continued)

SAMPLE NUMBER: SW25; SPLIT SAMPLE NUMBER SW37

DATE: June 7, 1986

TIME: 13:45

SAMPLE LOCATION: Consolidated Slip; see Figure 1, Inset B for detail.

DEPTH OF WATER (feet): 10

DEPTH OF SAMPLE COLLECTION (feet): 3 and 6

SAMPLING METHOD: PVC point source bailer lowered from 22 foot power boat..

TEMPERATURE (C°): 23

pH: 7.70

ELECTRICAL CONDUCTIVITY*: 42,000

* micro-mhos per cm



HARGIS + ASSOCIATES, INC.

SPLIT SAMPLES

5897



HARGIS + ASSOCIATES, INC.

SPLIT SAMPLES

<u>Split Sample Number</u>	<u>Date</u>	<u>Primary Sample Number</u>
NS18	5-20-86	NS2
NS19	5-21-86	NS8
KD6	5-29-86	KD4
SED30	5-30-86	SED10
SED30	6-04-86	SED19
SED33	6-05-86	SED18
SED35	6-06-86	SED21
SED36	6-07-86	SED25
SED37	6-11-86	SED14
SW31	6-05-86	SW17
SW35	6-06-86	SW21
SW37	6-07-86	SW25
SW39	6-12-86	SW5



HARGIS + ASSOCIATES, INC.

TRIP BLANKS



HARGIS + ASSOCIATES, INC.

TRIP BLANKS

SAMPLE NUMBER: SW32
DATE: June 5, 1986
TIME: 10:00
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: SW34
DATE: June 6, 1986
TIME: 09:00
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: SW36
DATE: June 7, 1986
TIME: 11:50
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: SW38
DATE: June 11, 1986
TIME: 10:15
ORGANIC FREE
WATER LOT NUMBER: AO 244



HARGIS + ASSOCIATES, INC.

RINSATE AND RINSATE BLANK SAMPLES

5907



HARGIS + ASSOCIATES, INC.

RINSATE AND RINSATE BLANK SAMPLES

SAMPLE NUMBER: 5-30-R(A)
DATE: May 30, 1986
TIME: 15:00
SOURCE: Hand auger for Dominguez Channel sediments.
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: 5-30-R(B)
DATE: May 30, 1986
TIME: 15:15
SOURCE: Direct from organic free dispensing system.
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: 6-5-R(A)
DATE: June 5, 1986
TIME: 10:05 to 16:15
SOURCE: Benthic sampler for Consolidated Slip.
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: 6-6-R(A)
DATE: June 6, 1986
TIME: 08:45 to 17:20
SOURCE: Benthic sampler and bottom emptying device.
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: 6-7-R(A)
DATE: June 7, 1986
TIME: 16:30 to 21:30
SOURCE: Benthic sampler and bottom emptying device.
ORGANIC FREE
WATER LOT NUMBER: AO 251

SAMPLE NUMBER: 6-11-R(AS)
DATE: June 11, 1986
TIME: 09:45
SOURCE: Hand auger for Dominguez Channel sediments.
ORGANIC FREE
WATER LOT NUMBER: AO 251



HARGIS + ASSOCIATES, INC.

RINSATE AND RINSATE BLANK SAMPLES
(continued)

SAMPLE NUMBER:	6-11-R(AW) 608 analysis only
DATE:	June 11, and June 12, 1986
TIME:	10:00 15:00
SOURCE:	Point source bailer for Dominguez Channel surface water and bottom emptying device.
ORGANIC FREE WATER LOT NUMBER:	AO 251 and AO 244
SAMPLE NUMBER:	6-12-R(AW) 624 analysis only
DATE:	June 12, 1986
TIME:	15:20
SOURCE:	Bottom emptying device for Dominguez Channel surface water.
ORGANIC FREE WATER LOT NUMBER:	AO 244



HARGIS + ASSOCIATES, INC.

WEATHER DESCRIPTIONS

7069



HARGIS + ASSOCIATES, INC.

WEATHER DESCRIPTIONS

DATE: May 20, 1986
TIME: 08:50
WEATHER DESCRIPTION: 74°F, sunny with scattered clouds, light breeze from the east.

TIME: 10:35
WEATHER DESCRIPTION: 78°F, sunny and clear, light breeze from the south.

TIME: 13:30
WEATHER DESCRIPTION: 78°F, sunny and clear, light breeze from the west.

TIME: 15:45
WEATHER DESCRIPTION: 78°F, sunny and clear, light to moderate breeze from the west.

DATE: May 21, 1986
TIME: 07:30
WEATHER DESCRIPTION: 72°F, overcast, calm.

DATE: May 28, 1986
TIME: 14:00
WEATHER DESCRIPTION: 78°F, sunny and clear, moderate to strong wind from the west.

DATE: May 29, 1986
TIME: 09:45
WEATHER DESCRIPTION: 77°F, overcast, light breeze from the southwest.

TIME: 13:15
WEATHER DESCRIPTION: 84°F, sunny and clear, light breeze from the west.



HARGIS + ASSOCIATES, INC.

**WEATHER DESCRIPTIONS
(continued)**

DATE:	May 30, 1986
TIME:	10:15
WEATHER DESCRIPTION:	73°F, overcast, calm.
TIME:	14:40
WEATHER DESCRIPTION:	Warm, sunny and clear, moderate breeze from the west.
DATE:	June 4, 1986
TIME:	17:00
WEATHER DESCRIPTION:	73°F, sunny with scattered clouds, moderate wind from the west.
DATE:	June 5, 1986
TIME:	15:00
WEATHER DESCRIPTION:	81°F, Sunny and clear, moderate wind from the south.
TIME:	16:45
WEATHER DESCRIPTION:	76°F, Sunny and clear, moderate breeze from the south-southwest.
DATE:	June 6, 1986
TIME:	11:50
WEATHER DESCRIPTION:	77°F, sunny and partly cloudy, variable winds from the southeast to southwest.
TIME:	15:15
WEATHER DESCRIPTION:	81°F, sunny and clear, light breeze from the west.
TIME:	18:00
WEATHER DESCRIPTION:	70°F, clear, strong wind from the west.

**WEATHER DESCRIPTIONS
(continued)**

DATE: June 7, 1986
TIME: 13:30
WEATHER DESCRIPTION: 80°F, sunny and clear, light wind from the south.

TIME: 17:15
WEATHER DESCRIPTION: 75°F, clear, calm.

DATE: June 8, 1986
TIME: 10:45
WEATHER DESCRIPTION: 80°F, sunny and clear, moderate wind from the southwest.

DATE: June 11, 1986
TIME: 14:30
WEATHER DESCRIPTION: 80°F, sunny and clear, moderate to strong wind from the west.

TIME: 16:30
WEATHER DESCRIPTION: 78°F, sunny and clear, moderate wind from the northwest.

DATE: June 12, 1986
TIME: 11:30
WEATHER DESCRIPTION: 79°F, sunny and clear, slight wind from the southeast.

TIME: 13:30
WEATHER DESCRIPTION: 79°F, sunny and clear, moderate to strong wind from the west.

TIME: 16:00
WEATHER DESCRIPTION: Clear, strong breeze from the west.

TIME: 18:30
WEATHER DESCRIPTION: Clear, moderate breeze from the west.



HARGIS + ASSOCIATES, INC.

WEATHER DESCRIPTIONS
(continued)

DATE:

June 13, 1986

TIME:

10:00

WEATHER DESCRIPTION:

78°F, sunny and clear, light wind from the southwest.



HARGIS - ASSOCIATES, INC.

METER CALIBRATION



HARGIS + ASSOCIATES, INC.

METER CALIBRATION

Date	Time	Standard Solution*	Conductivity Meter Reading*
6-4-86	15:15	24820	23100
6-5-86	11:00	24820	19000
6-6-86	10:00	24820	18000
6-7-86	12:30	24820	19000
6-8-86	10:30	24820	17000
6-12-86	08:30	25000	21000
6-12-86	21:20	2500	2400

The electrical conductivity of all surface water samples was measured in the laboratory due to low meter readings on standard solutions in the field.

A Corning pH meter was calibrated to 7.0 before each use with fresh pH solution made from Hach Kit powder pillows and distilled water.

* micro-ohms per cm

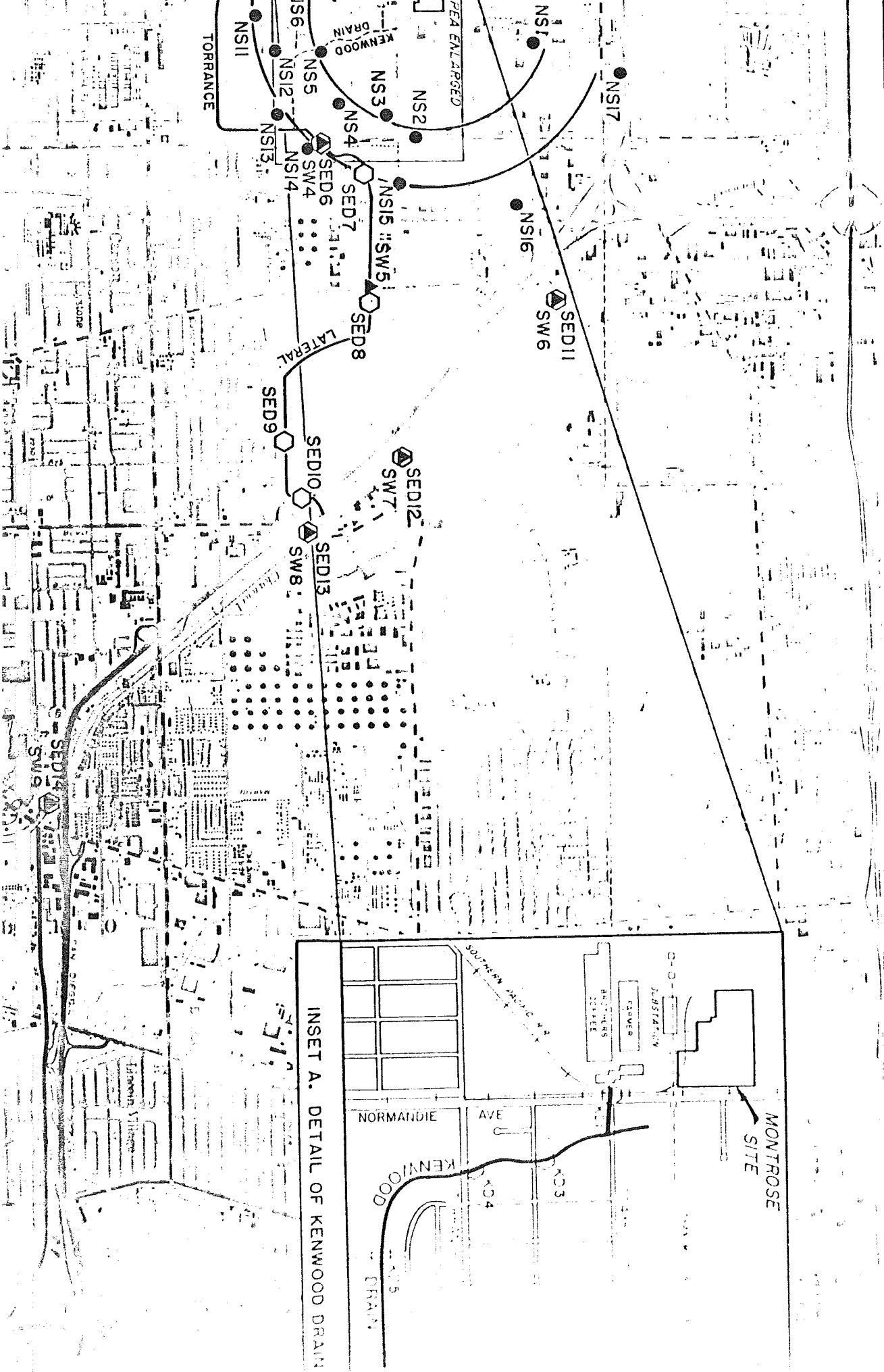
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Illustrations

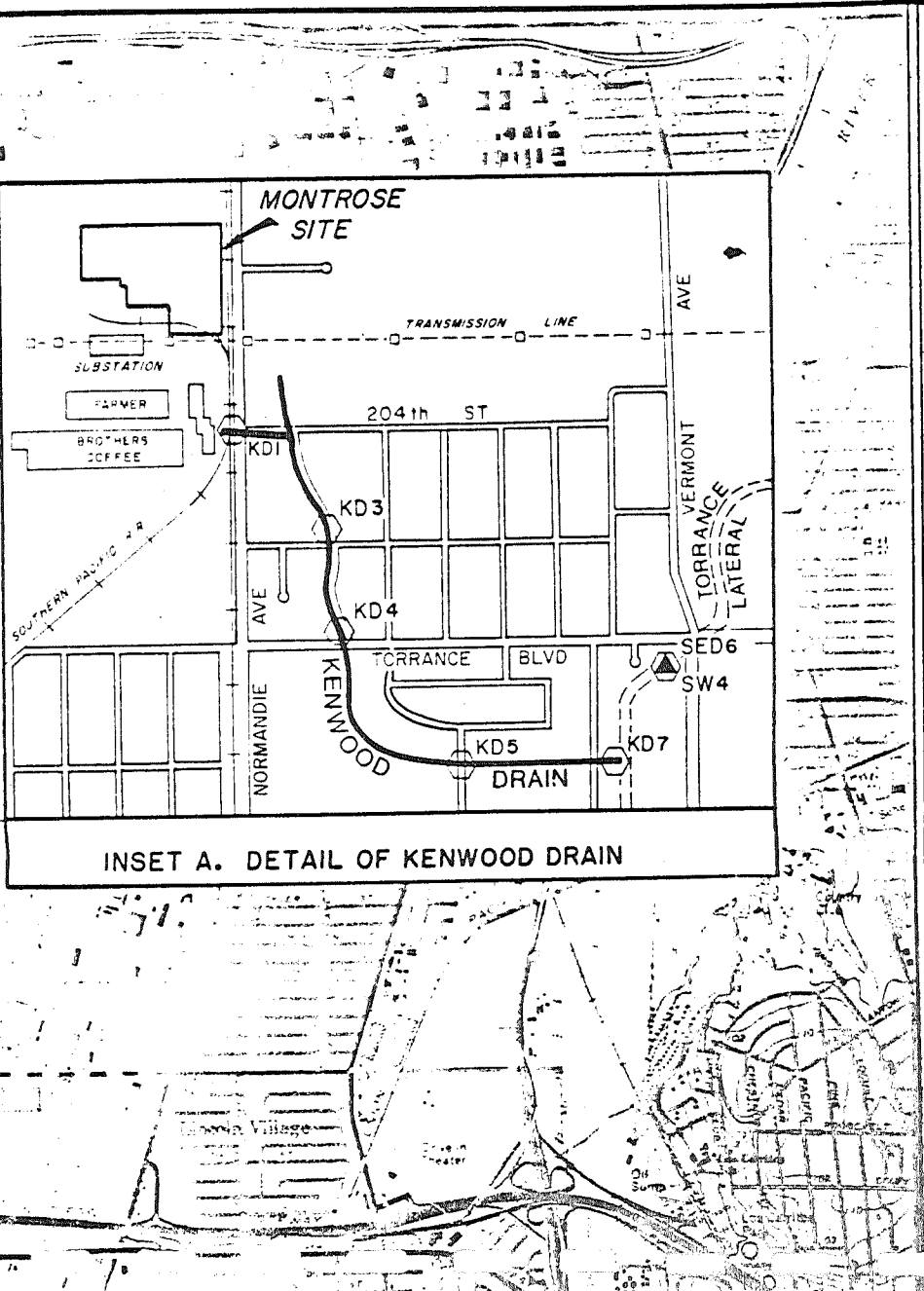
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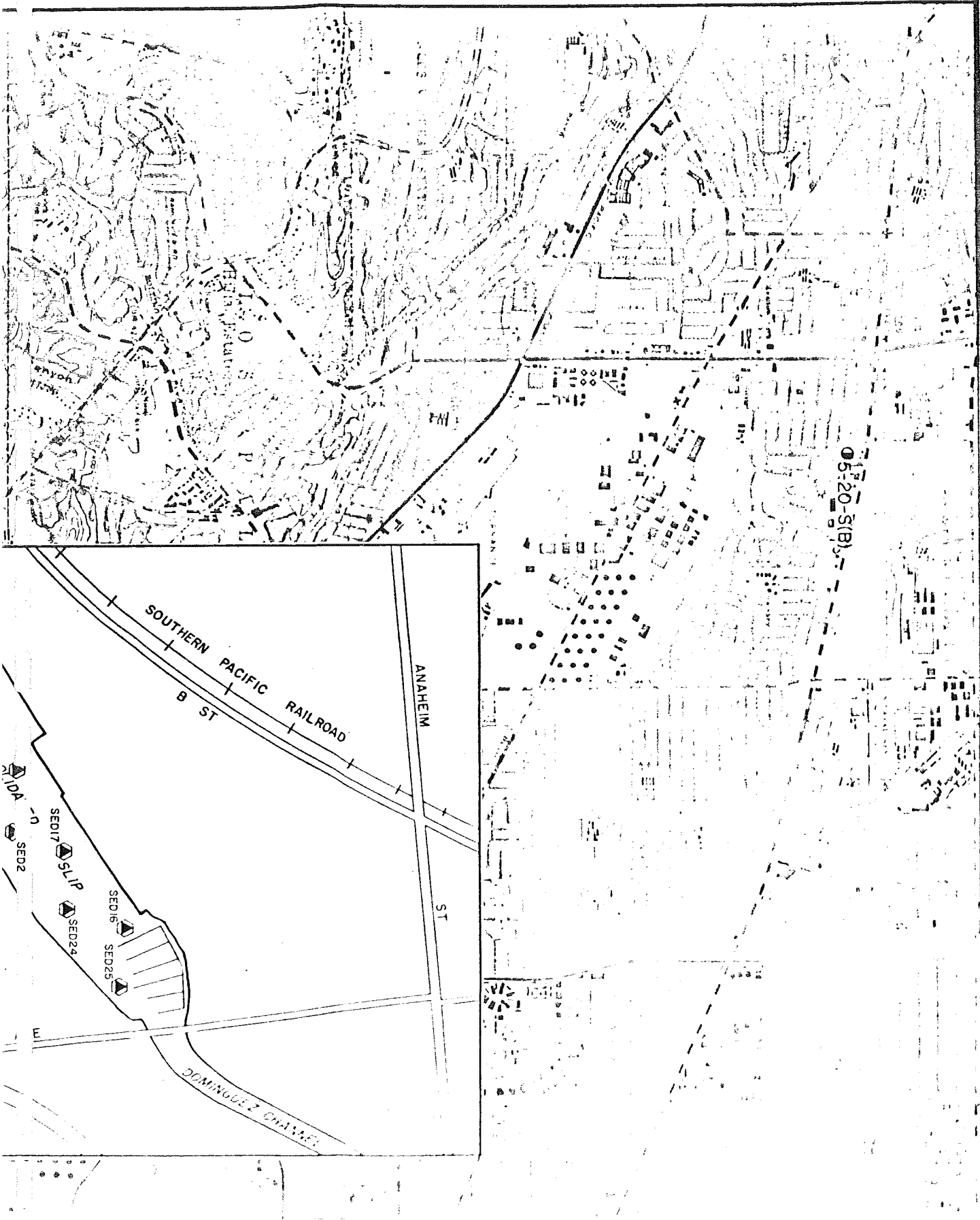
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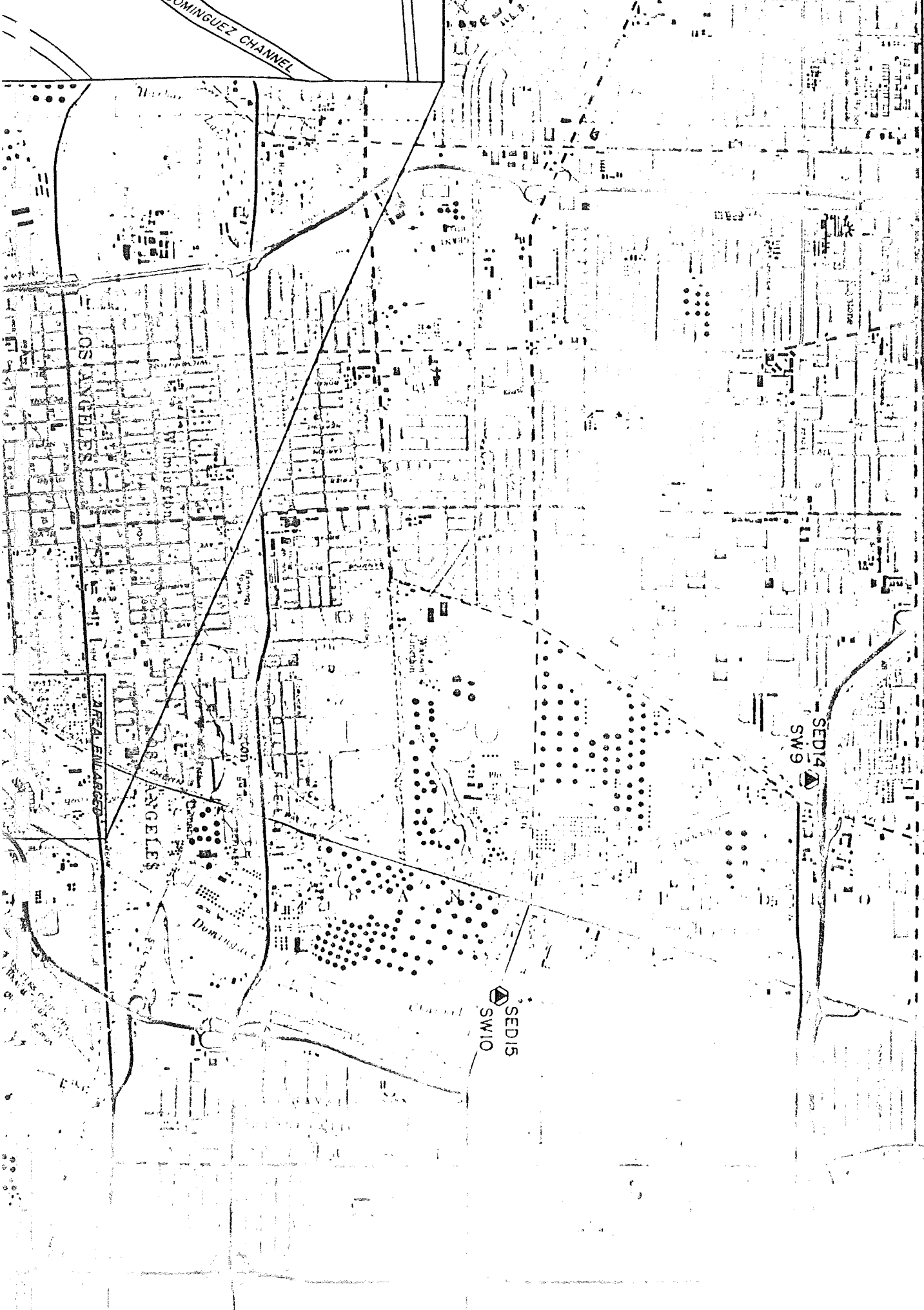
EXPLANATION

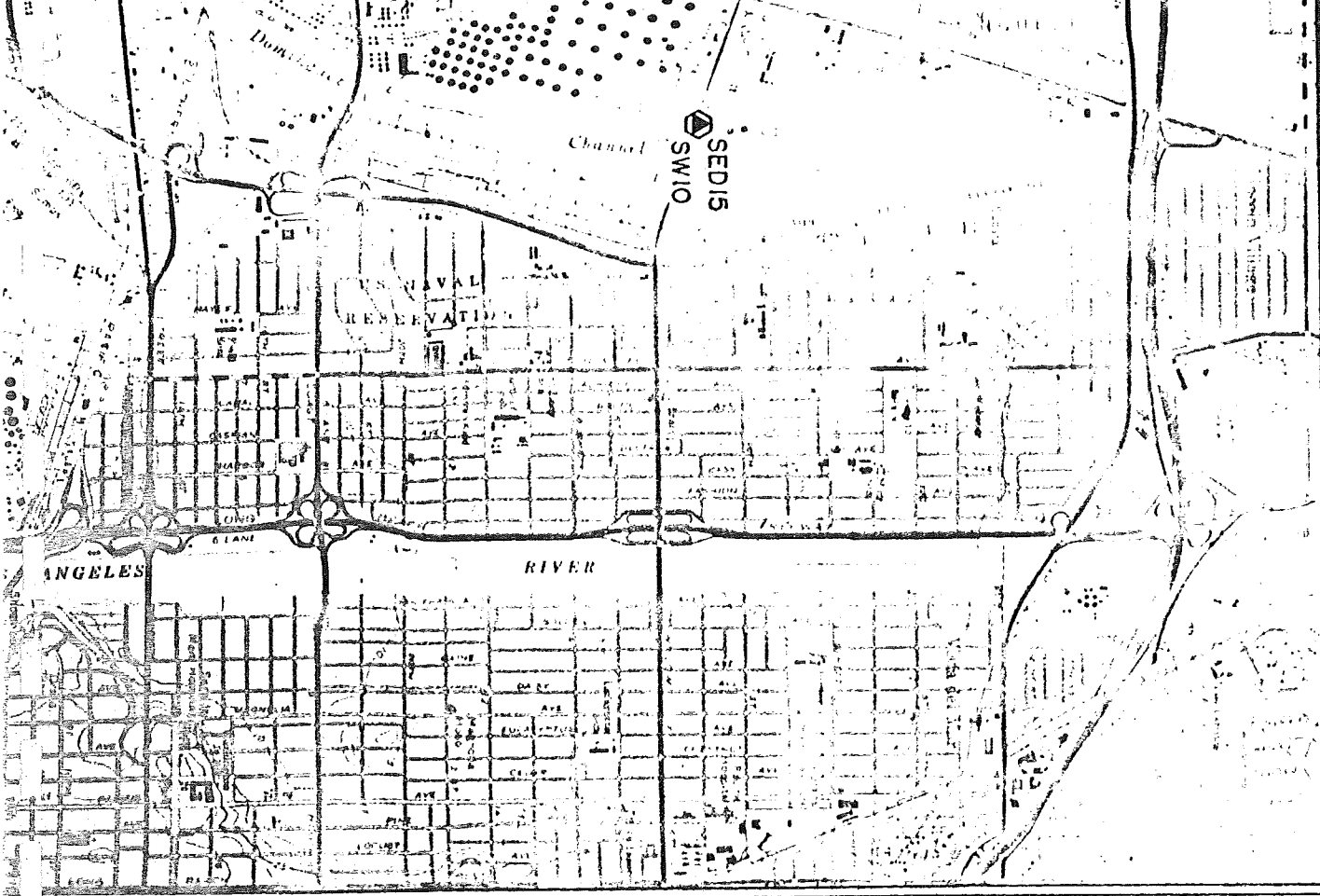
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- ▲ SW7 SURFACE WATER SAMPLE LOCATION
- NSI NEIGHBORHOOD SHALLOW SOIL SAMPLE LOCATION
- ① 5-20-S(B) BACKGROUND NEIGHBORHOOD SOIL SAMPLE LOCATION

159151

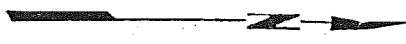


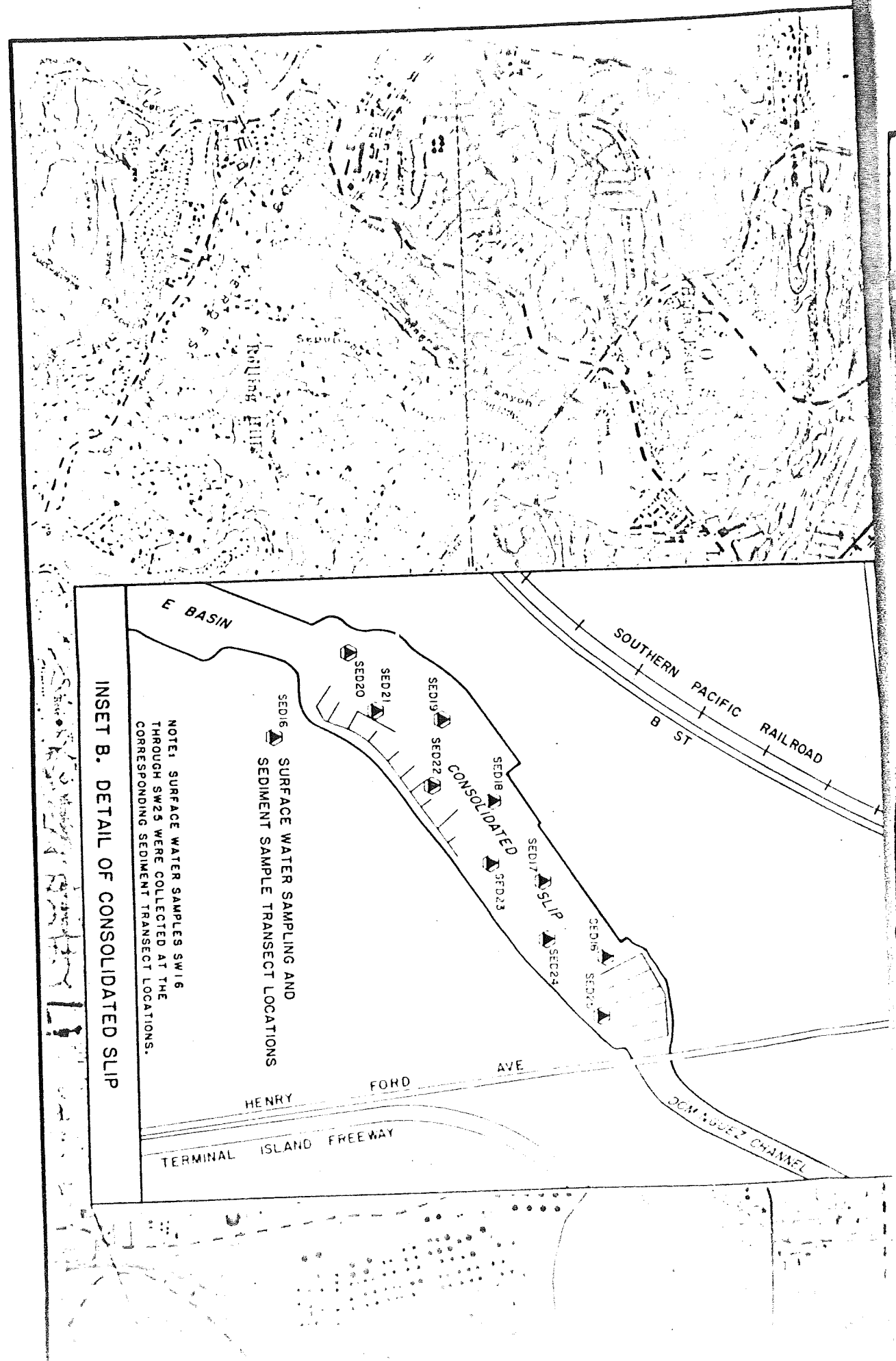
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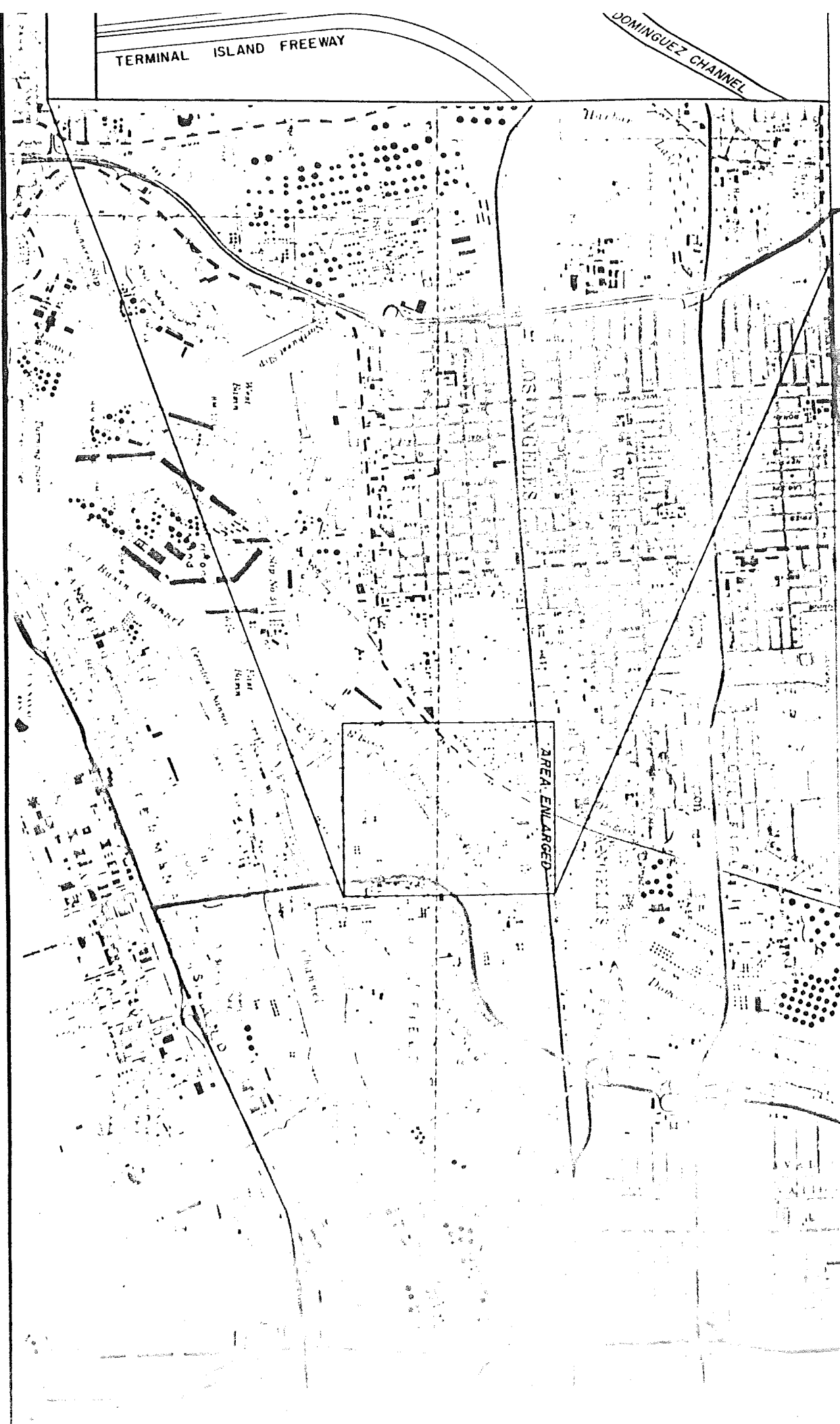




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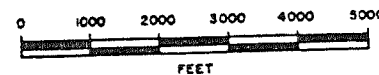
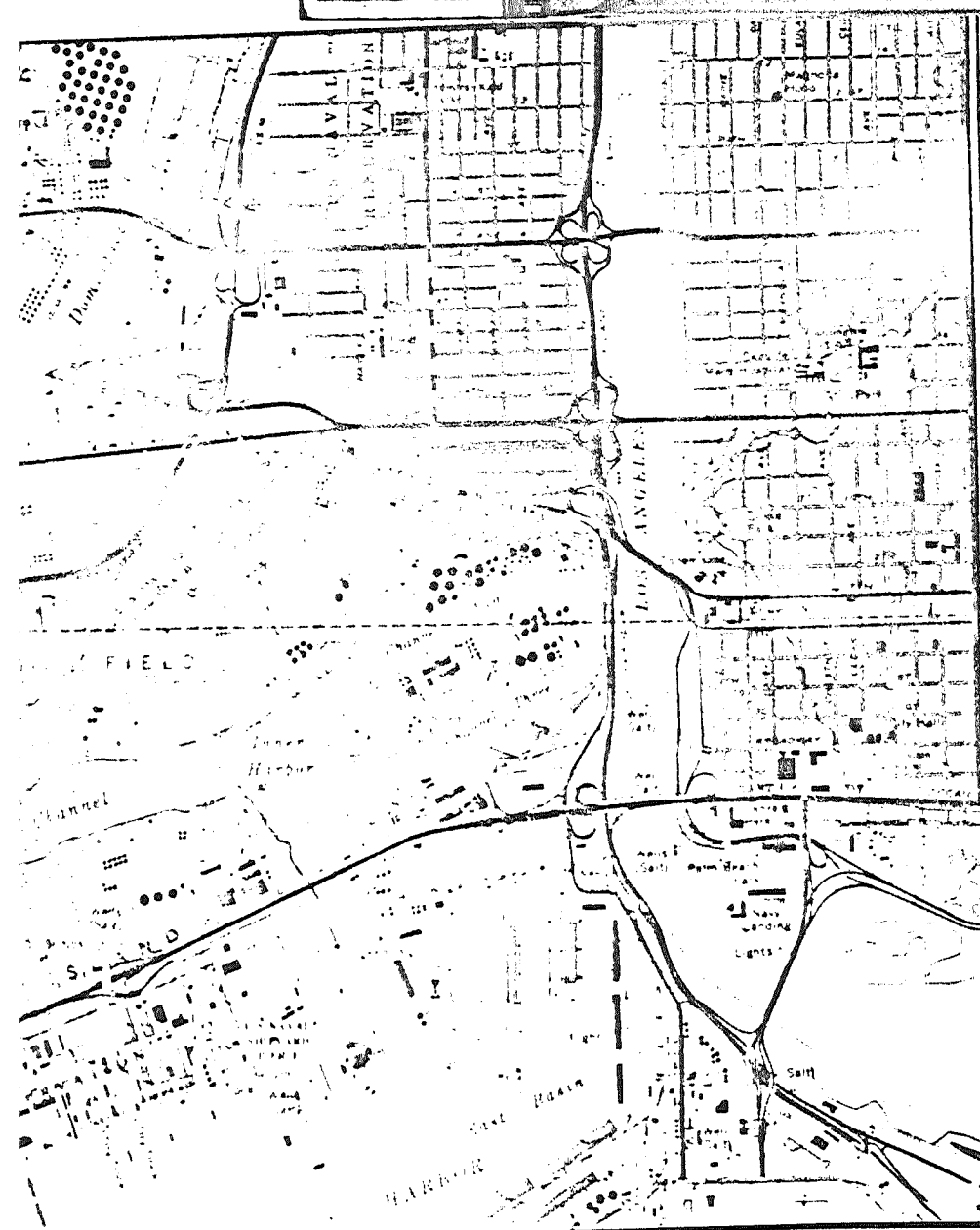






59191

5920



MONTROSE CHEMICAL CORPORATION
TORRANCE, CALIFORNIA

SURFACE WATER,
SEDIMENT AND NEIGHBORHOOD
SOIL SAMPLING LOCATIONS



HARGIS + ASSOCIATES, INC.
Consultants in Hydrogeology
San Diego, California

PREPARED BY _____ REVIEWED BY _____